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CHARLESTON, W.Va. -- The "flushing" recommended by the Tomblin administration and West Virginia American Water might not have effectively eliminated Crude MCHM and other toxic chemicals from plumbing systems in homes and businesses, experts are warning. MCHM from the Jan. 9 Freedom Industries leak into the Elk River might be stuck inside pipes and hot-water tanks, and experts are concerned that the chemical also could be breaking down into other toxic materials that have yet to be fully identified.

Scott Simonton, a Marshall University environmental engineer, told a legislative committee Wednesday that he found cancer-causing formaldehyde -- which he said is one possible breakdown product from the chemical -- in one local water sample and that the continued lack of data on the chemicals that leaked into the Elk is very concerning.

"It's frightening, it really is frightening," said Simonton, who is a member of the state Environmental Quality Board and also consults for at least one local law firm that's filed suit over the leak. "What we know scares us -- and we know there's a lot more we don't know."

Early Wednesday evening, the state Department of Health and Human Resources issued a statement that called Simonton's comments regarding formaldehyde "totally unfounded" and said his testimony "does not speak to the health and safety of West Virginians."

Dr. Letitia Tierney, commissioner of the Bureau for Public Health, said Wednesday evening that the chemists the state had consulted with all said the formaldehyde could not have come from the MCHM.

"Our experts are all in agreement that it's unlikely that his findings are in any way related to the chemical spill," she said. "It's already in our environment."

Tierney and Elizabeth Scharman, director of the West Virginia Poison Center, questioned Simonton's methodology, saying that he hasn't released multiple samples, the lab he used, how his sample was collected or other details. They also said Simonton had not made attempts to contact them.

"People shouldn't just take the statement of, 'Oh we found formaldehyde in the water,' and have that be a scary statement in itself," Scharman said. "What we're trying to let people know is that formaldehyde can be found in the water and it can be found in the air, and just put that in perspective."

Tierney said formaldehyde is not something they test for because it is created and breaks down naturally and dissolves quickly.

"Formaldehyde is naturally produced in very small amounts in our bodies as part of our normal, everyday metabolism and causes no harm," Tierney's statement said. "It can also be found in the air that we breathe at home and at work, in the food we eat, and in some products that we put on our skin."

Wednesday morning, Simonton told a joint legislative committee on water resources that his family is still not drinking or cooking with tap water, two weeks after the water company and government officials said it is safe for all uses.

"Your level of what risk you will accept is up to you," Simonton said. "I can only tell you what mine is, and I'm not drinking the water. The formaldehyde had me personally a little freaked out."

Sen. John Unger, chairman of the legislative water committee, summed up Simonton's findings. "I think we're in a little bit of shock because of this," said Unger, D-Berkeley.

Andrew Whelton, an environmental engineer from the University of South Alabama, drove to West Virginia after the leak. He and his team of researchers have been taking water samples and helping residents complete the flushing process, but with a different set of guidelines than the state and West Virginia American recommended.

For example, Whelton emphasizes that residents should open their windows during the flushing process and use ceiling or floor fans to push chemical fumes outside.

Whelton also suggests shutting off hot-water tanks before flushing because chemicals in the water will evaporate faster into your home or workplace from hot water than from cold.

In an interview, Whelton said it's crucial that officials begin testing and sampling inside people's homes to determine the level of contamination of plumbing systems and what to do about it.

"I can't believe they aren't doing this," Whelton said. "These issues aren't being addressed. The long-term consequences of this spill are not being addressed."

The latest estimates made public by the state Department of Environmental Protection are that 10,000 gallons of Crude MCHM leaked from a storage tank at Freedom's Etowah Terminal, just 1.5 miles upstream from West Virginia American's regional intake, which provides drinking water to 300,000 people.

The main ingredient in Crude MCHM is another chemical, called 4-methylcyclohexanemethanol. Simonton noted, though, that methanol also is one of its main components. Methanol can break down into formaldehyde, he said.

Tierney, however, said the state's experts have concluded that MCHM cannot be broken down into formaldehyde unless it is heated to 500 degrees Fahrenheit.

Scharman added that, although information on the health and long-term effects of the chemical is still limited, the state has much better information on its chemical makeup and how it breaks down.

Simonton said he found traces of formaldehyde in water samples taken from the Vandalia Grille, in downtown Charleston.

Kevin Thompson, an attorney who retained Simonton as an expert witness for a leak lawsuit, said the sample taken at the Vandalia Grille five days after the leak found 32 parts per billion of formaldehyde. He said that one sample is the only one of dozens his team took that they has been received, so far.

Formaldehyde is found in food and in common consumer products, such as cigarettes, cosmetics and wrinkle-free clothing. It can enter your body by inhalation, ingestion or if your skin comes into contact with liquids containing formaldehyde, according to the U.S. Agency for Toxic Substances and Disease Registry.

The ATSDR said the risks of formaldehyde are "low" at 10 parts per billion. The agency said the risks of irritation from formaldehyde are "medium" at 100 parts per billion.

After Simonton's testimony about formaldehyde, West Virginia American Water issued a statement that said, "It is misleading and irresponsible to voice opinions on potential health impacts to residents of this community without all of the facts."

"Procedures for water analysis are carefully prescribed, outlined and certified," the water company statement said. "West Virginia American Water will continue working with governmental health and environmental professionals and, in conjunction with these professionals, we and public health agencies will make public any reliable, scientifically sound information relating to risks to public health, if any."

In his testimony, Simonton also said he is still concerned with the 1 part per million standard for Crude MCHM that the federal Centers for Disease Control and Prevention has said is safe in water for everyone except pregnant women.

The vast majority of the most recent test results posted by the state Division of Homeland Security show a "not detected" level of Crude MCHM in water samples. The state has said it can detect the chemical down to 10 parts per billion, although officials in Louisville, Ky., have said their tests can detect the chemical at concentrations down to 1 part per billion.

Scharman said that is just the nature of testing.

"For any test that we do," she said, "different labs have different lower thresholds, so you can always find a level that can test just slightly under."

In a letter sent Tuesday to Sen. Jay Rockefeller, D-W.Va., West Virginia American Water President Jeff McIntyre emphasized that the most recent testing using the state's method has shown "non-detectable levels of MCHM in multiple pressure zones, accounting for approximately 85 percent of our local service area.

"In remaining areas where testing results are above the non-detectable limit, they are still extremely low and only a fraction of the CDC-established 1 ppm health-protective limit," McIntyre wrote. Last week, Adjutant Gen. James Hoyer of the West Virginia National Guard said the Guard had done some testing in hospitals but had no plans to test in individual homes or businesses.

"I'd have Guardsmen on duty for the rest of my career," Hoyer said.

The water company also has said it has no plans to provide customers with home testing of their tap water.

In his legislative testimony Wednesday, Simonton stressed what other outside public-health officials have already made clear: Little is known about the chemicals involved in the leak.

"We don't know what happens to this stuff once it gets into the environment," he said. "What happens when it reacts with makeup or soap or shampoo or anything else that we come into contact with everyday?"

He also said the flushing period recommended by West Virginia American and state officials wasn't enough and that the chemical is sticking to pipes in the system.

Starting Jan. 13, water company officials and the state began a weeklong process of lifting broad "do not use" orders for sections of the nine-county area impacted by the MCHM leak. After the order was lifted, residents were advised to run their hot water for 15 minutes, their cold water for 5 minutes, and their outside faucets for 5 minutes to flush the chemical from their homes.

But since then, residents have continued to complain that the black-licorice smell of the chemical is lingering, especially in their hot water.

State officials, in announcing their guidance for flushing, rejected an earlier recommendation from the ATSDR that residents be advised to flush their plumbing systems until the chemical odor is gone. Simonton said people have flushed for hours and hours, and the odor still remains.

"We know the stuff is sticking," he said. "Exactly where it is or how it's happening is unclear right now."

The U.S. Environmental Protection Agency had said in internal documents that flushing the chemicals out of the system "may require a fairly prolonged time to complete," perhaps two to three weeks.

In a letter sent Monday to the Federal Emergency Management Agency, Tomblin acknowledged that the public lacks faith in the safety of the region's water supply.

"Despite the best efforts of the company and government many people no longer view their tap water as safe and are continuing to demand bottled water to meet their potable water needs," the governor wrote to FEMA Regional Director MaryAnn Tierney. "It is impossible to predict when this will change, if ever."

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